

REMARKS

Claims 1-29 are pending in this application. By this Amendment, claims 1, 2, 6 and 14 are amended. New claim 29 is added.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicants specifically state that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

With respect to the prior art rejections, claims 1-5, 10-14, 17, 19-22, and 24-28 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Zhang (U.S. Patent No. 6,578,998). Claims 6-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhang, in view of Hecht (U.S. Patent No. 6,871,993), Suehiro, et al. (U.S. Patent Application Publication No. US 2002/0024808), and Bukosky (U.S. Patent No. 6,076,948). Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhang, in view of Hecht, Suehiro, et al., and Bukosky, further in view of Chen (U.S. Patent No. 6,733,156). Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhang, in view of Gorczyca (U.S. Patent No. 6,800,373). Claims 15-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhang, in view of Chen. Claim 18 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhang, in view of Lowery (U.S. Patent No. 5,959,316). Claim 23 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhang, in view of Camras, et al. (U.S. Patent No. 6,733,156).

The rejection is respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

The invention of claim 1, for example, is directed to a light emitting apparatus that includes a light source section having a solid-state light emitting element, a power supply section that supplies power to the light source section, a reflection section that is disposed opposite to a light extraction surface of the light source section to reflect light emitted from the light source section, and a heat radiation section that is disposed with a heat radiation width in a back direction of the light source section. An insulating layer is disposed between the power supply section and the heat radiation section (Application at page 10, lines 2-18).

The structure of the heat radiation section and the insulating layer is important because it provides excellent heat radiation performance and minimizes a reduction in the emission efficiency of reflected light in the apparatus (Application at page 2, lines 25-28)

In a conventional light emitting apparatus, as described in the Background of the present application, if the size of a power lead is increased to cope with increased heat generation from the light source, the light emission efficiency is decreased due to blockage of the light by the enlarged power lead (Application at page 2, lines 17-24).

In contrast, an exemplary aspect of this invention may provide for dissipation of heat from the light source without interfering with light emission (Application at page 14, lines 7-21).

II. THE PRIOR ART REJECTIONS

A. The Zhang reference rejection

In rejecting claims 1-5 and 10-14, 17, 19-22 and 24-28 under 35 U.S.C. §102(b), the Examiner alleges that Zhang discloses all of the features recited in the rejected claims. However, there are features of the rejected claims that are neither taught nor suggested by the Zhang. For example, Zhang fails to disclose or suggest an insulating layer is disposed between the power supply section and the heat radiation section.

Zhang discloses a light source arrangement that has solid-state light source 20. The light source 20 has terminal electrodes 201, 202 and a luminary element 21 that emits light when the terminal electrodes are electrified (col. 2, lines 51-56 of Zhang). The terminal electrodes are integrally extended from two inner ends of supporting arms 311, 312 of a supporting bridge 31 that acts as a heat sink. The supporting bridge 31 is part of a supporting frame 30 that is electrically connected to a circuit board 15 (col. 2, line 57-col. 3, line 50; Figs. 2 and 3).

The Examiner alleges that the supporting bridge 31 and the circuit board 15 correspond to the power supply section recited in the claims. The Examiner further alleges that the supporting bridge 31 also corresponds to the heat radiation section.

To emit light from the light source 20, current is passed from the circuit board 15 to the supporting frame/supporting bridge 30/31 to the terminal electrodes 201, 202. As such, Zhang requires electrical conductivity between the alleged power supply section 31, 15 and the heat radiation section 31.

Accordingly, Zhang fails to disclose or suggest an insulating layer is disposed between the power supply section and the heat radiation section.

Moreover, there is no suggestion or motivation to modify Zhang to include an insulating layer between the power supply section and the heat radiation section because such a modification would render Zhang useless for its intended purpose by interrupting the conductivity between the circuit board and the light source.

Moreover, regarding the rejection of independent claim 2, the Examiner alleges that Zhang discloses “a case 12 in which the reflection section and the radiation section are placed and which externally radiates heat to be transferred from the heat radiation section” at col. 3, lines 13-21.

However, there is no such disclosure, or even a suggestion, of such a feature at the cited section of Zhang. Instead, the cited section of Zhang recites, “In order to achieve the light reflecting ability of the cell body 10, an inner semi-spherical surface of the bowl shaped reflecting member 11 and four upper inner surfaces of the four supporting walls 12 are coated with a layer of light reflecting material such as aluminum, silver, or titanium to form the light projecting surface 14. Alternatively, the entire cell body 10 can be made of light reflecting material such as aluminum, silver, or titanium to provide the light projecting surface 14.”

Accordingly, Zhang fails to disclose or suggest whether the case externally radiates heat to be transferred from the heat radiation section of independent claim 2 as alleged in the Office Action.

Regarding claim 3, the Examiner also relies on col. 3, lines 13-21 of Zhang as teaching “the light emitting apparatus wherein the heat radiation section comprises a same material as the case.”

However, as discussed above, Zhang fails to disclose or suggest a heat radiation section. Additionally, the cited section of Zhang also fails to disclose or suggest the material comprising the supporting bridge that the Examiner considers as corresponding to the heat radiation section, as recited in claim 3. Thus, there is no teaching or suggestion about whether the heat radiation section comprises a same material as the case.

Regarding claim 12, the Examiner again relies on col. 3, lines 13-21 of Zhang as teaching “the light emitting apparatus wherein the heat radiation section comprises a heat radiation plate that comprises a high reflectivity surface to reflect the light.”

However, as discussed above, the cited section of Zhang fails to disclose or suggest a

heat radiation section or even heat radiation in any manner. Thus, there is no teaching or suggestion by Zhang of a heat radiation section comprising a heat radiation plate.

As Zhang fails to anticipate the rejected claims, withdrawal of the rejection is respectfully requested.

B. The Zhang, Hecht, Suehiro and Bukosky reference rejection

In rejecting claims 6 and 7 under 35 U.S.C. §103(a), the Examiner alleges that the combination of references renders the subject matter recited in claims 6 and 7 obvious. However, claims 6 and 7 are allowable for their dependency on independent claim 1 for the reasons discussed above, as well as for the additional features recited therein.

Moreover, there is no motivation or suggestion to make the combination as proposed in the Office Action. For example, the Examiner alleges that Bukosky discloses a light emitting apparatus having a substrate 50 on which a light emitting diode is commonly made out of glass.

However, the substrate 50 to which the Examiner is referring is a rearview mirror for an automobile (see Fig. 8, col. 6, line 44-col. 7, line 35). As the reference fails to disclose the feature as alleged in the Office Action, reliance on the reference for such a teaching is improper. Further, as the feature is not disclosed or suggested, there is no motivation to modify Zhang as proposed in the Office Action.

As the combination of references fails to disclose or suggest each and every feature recited in the rejected claims, withdrawal of the rejection is respectfully requested.

C. The Zhang, Hecht, Suehiro, Bukosky and Chen reference rejection

In rejecting claim 8 under 35 U.S.C. §103(a), the Examiner alleges that the combination of references renders the claimed invention obvious. However, claim 8 is allowable for its dependency on independent claim 1 for the reasons discussed above, as well as for the additional features recited therein.

Moreover, as none of Hecht, Suehiro, Bukosky and Chen disclose or suggest an insulating layer that is disposed between the power supply section and the heat radiation section, the references fail to overcome the deficiencies of Zhang.

To establish a *prima facie* case of obviousness there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one

of ordinary skill in the art, to modify the reference or to combine reference teachings. Further, the teaching or suggestion to make the claim combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure (MPEP §2143).

One of ordinary skill in the art would not have been motivated to combine the references because there is no suggestion or teaching to make the combination in the references. For example, Bukosky addresses problems with placing automobile turn signals in rearview or sideview mirrors (col.1, lines 5-61). As such there is no teaching or suggestion in the references to make the combination. Moreover, as discussed above, Bukosky fails to disclose the features as alleged in the Office Action.

As the combination of references fails to disclose or suggest each and every feature recited in the rejected claims, withdrawal of the rejection is respectfully requested.

D. The Zhang and Gorczyca reference rejection

In rejecting claim 9 under 35 U.S.C. §103(a), the Examiner alleges that the combination of references renders the claimed invention obvious. However, claim 9 is allowable for its dependency on independent claim 1 for the reasons discussed above, as well as for the additional features recited therein.

Moreover, as Gorczyca does not disclose or suggest an insulating layer is disposed between the power supply section and the heat radiation section, the reference fails to overcome the deficiencies of Zhang.

As the combination of references fails to disclose or suggest each and every feature recited in the rejected claim, withdrawal of the rejection is respectfully requested.

E. The Zhang and Chen reference rejection

In rejecting claims 15 and 16 under 35 U.S.C. §103(a), the Examiner alleges that the combination of references renders the claimed invention obvious. However, claims 15 and 16 are allowable for their dependency on independent claim 1 for the reasons discussed above, as well as for the additional features recited therein.

Moreover, although the Examiner alleges that it would have been obvious to one of ordinary skill in the art to modify Zhang with a thin metallic film sandwiched between insulators, there is no suggestion to do so in the references.

As discussed above, Zhang requires electrical conductivity between the power supply section 31, 15 and the heat radiation section 31. Thus, to place an insulator in between would break the electrical conductivity thereby rendering the device useless for its intended purpose.

As the combination of references fails to disclose or suggest each and every feature recited in the rejected claim, withdrawal of the rejection is respectfully requested.

F. The Zhang and Lowery reference rejection

In rejecting claim 18 under 35 U.S.C. §103(a), the Examiner alleges that the combination of references renders the claimed invention obvious. However, claim 18 is allowable for its dependency on independent claim 1 for the reasons discussed above, as well as for the additional features recited therein.

Moreover, as Lowery does not disclose or suggest that an insulating layer is disposed between the power supply section and the heat radiation section, the reference fails to overcome the deficiencies of Zhang.

As the combination of references fails to disclose or suggest each and every feature recited in the rejected claim, withdrawal of the rejection is respectfully requested.

G. The Zhang and Camras reference rejection

In rejecting claim 23 under 35 U.S.C. §103(a), the Examiner alleges that the combination of references renders the claimed invention obvious. However, claim 23 is allowable for its dependency on independent claim 1 for the reasons discussed above, as well as for the additional features recited therein.

Moreover, as Camras does not disclose or suggest that an insulating layer is disposed between the power supply section and the heat radiation section, the reference fails to overcome the deficiencies of Zhang.

As the combination of references fails to disclose or suggest each and every feature recited in the rejected claim, withdrawal of the rejection is respectfully requested.

None of the applied references of record, whether considered alone or in combination, discloses or suggests the features of new claim 29.

III. Formal Matters

In view of the foregoing, Applicants submit that claims 1-29, all the claims presently

pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

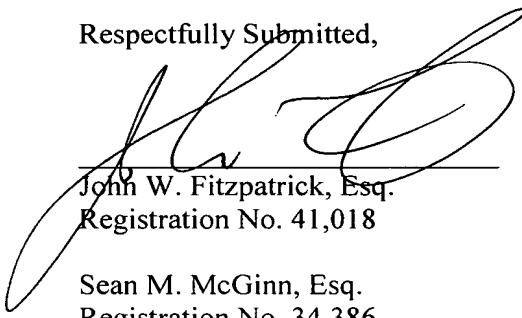
Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Date:

12/13/06

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